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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,801	09/08/2003	Camillo Bresolin	854063.730	1152
500	7590	10/18/2005	EXAMINER	
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC			VANORE, DAVID A	
701 FIFTH AVE			ART UNIT	
SUITE 6300			PAPER NUMBER	
SEATTLE, WA 98104-7092			2881	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/657,801

Applicant(s)

BRESOLIN ET AL.

Examiner

David A. Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9,21-23,25-27,30 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-9,21-23,25-27 and 30 is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 32-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments filed September 1, 2005 have been fully considered but they are not persuasive.
2. The applicant has argued at Col. 7 bridging to Col. 8 that Sakai et al. teaches away from the use of Oxygen (O.sub.2) in an implantation chamber and cites Col. 5 Lines 10-26. The citation presented to back up the argument states that oxygen gas which is activated in the decontamination means of Sakai et al. does in fact decontaminate the chamber and that oxygen gas is introduced into the chamber for the purpose of decontamination. The examiner further cites USPN 6,093,625 to Wagner et al. which at Col. 3 Lines 6-15 that air or oxygen (O.sub.2) may be supplied to an implantation chamber to reduce contamination, but that oxygen (O.sub.2) is preferable. Therefore, oxygen (O.sub.2) is at least as functional as air as a reactant gas in decontaminating an implantation chamber. Therefore, the prior art teaches all the required limitations of the invention, and the rejection under 35 USC 103(a) stands with respect to claims 1-4, 25-27, 30, and 32-33.
3. New claims 34-35 are addressed in Office action below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-4, and 32-33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art contained in the specification at pages 1-4 and Fig. 1, and further in view of Sakai et al. (USPN 5,466,942).

5. Regarding claim 1, Sakai et al. teaches a charged particle implanting apparatus comprising an implantation chamber (Fig. 1 Item 1) having a vent inlet (19), a vacuum pump coupled to the chamber (6), and a means for connecting the vent inlet to a source of a fluid containing oxygen (Items 20a and 20b coupled to a source of O.sub.2 gas Col. 3 Lines 47-54).

6. Sakai et al. teaches all the required limitations of claim 1, but fails to teach that a source of oxygen is environmental air. To the contrary, Sakai et al. teaches that a dedicated source of oxygen gas is used (Note the citation above).

7. The specification at page 4 recites that the mechanism for decontamination of the chamber is the oxygen contained in gas supplied to the chamber in a cleaning operation. Sakai et al. similarly teaches the use of oxygen as a means for cleaning an irradiation chamber (Col. 5 Lines 14-36).

8. Sakai et al. further teaches that valves (20e) control the amount of gas supplied to the chamber. Therefore, a desired amount of oxygen can be admitted into the irradiation chamber of Sakai et al. using a dedicated source of oxygen gas.

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9. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use environmental air as an oxygen supply because the environmental air is plentiful, cheap, and contains oxygen in relatively consistent concentrations.

10. Regarding claim 3, the means for connecting are tubes and are connected to the vent inlet of the chamber (Note Fig. 1 and Col. 3 Lines 47-54 describing the arrangement). Tubes are substantially equivalent to pipes as a conveyance for a fluid medium.

11. Regarding claim 4, the pipe (18) further comprises flow control means (20b and 20c) which control the amount of mass flow there through.

12. Regarding claims 32-33 Sakai et al. teaches an implantation chamber (Fig. 1 Item 1), a vacuum pump (6), a decontaminating means comprising an oxygen source (Col. 3 Lines 47-54), a first valve between the implantation chamber and vacuum pump (Note Fig. 1, adjacent pump 6 is indicated a valve by the box with containing an "x", similar to valve means 9), and a second valve between the oxygen source and the chamber (Fig. 1 Items 20e).

13. Sakai et al. fails to explicitly teach a control means for opening the first valve to create a vacuum during implantation, and opening a second valve during decontamination. However, Sakai et al. teaches that irradiation of the target is

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undertaken in vacuum for a protracted period, then the oxygen is introduced to decontaminate the chamber, following decontamination, exposure is resumed (Col. 2 through Col. 3 Line 2 and Col. 4 Lines 3-28).

14. The admitted prior art contained in the specification at pages 1-3 and illustrated in Fig. 1 of the instant application teach a controller 12 having a driving circuit 12b divided into two control branches coupled to control assembly 6 which selectively inhibits or disconnects the vacuum pump of the admitted prior art (Cryopump 4), from the implantation chamber by articulating the vacuum valve (5). As taught in the admitted prior art contained in the specification, this allows implantation of different ionic species in crossover operations.

15. Providing a controller to accomplish the decontamination method performed by the exposure and decontamination system of Sakai et al. automates or optimizes the user's ability to regulate the decontamination of the implantation chamber.

16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a controller to operate the first and second valves because the device of Sakai et al. performs the evacuation and decontamination functions by regulating the pressure and oxygen gas flow in the implantation chamber. Using a controller reduces the number and complexity of operations, which a human operator would need to perform.

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17. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art contained in the specification at pages 1-4 and Fig. 1, and Sakai et al. (USPN 5,466,942) further in view of Wagner et al. (USPN 6,093,625).

18. The admitted prior art and Sakai et al. teach all the required limitations of claims 1 and 32 as pointed out above, but fail to teach a chamber pressure maintained at  $1 \times 10^{-5}$  torr to  $5 \times 10^{-5}$  torr.

19. Wagner et al. teaches the use of oxygen or air to decontaminate an ion implantation chamber where the pressure is maintained between  $1 \times 10^{-5}$  torr to  $5 \times 10^{-5}$  torr such that this pressure range facilitates chamber decontamination (Col. 5 Lines 55-61).

20. Wagner et al. modifies the prior art by teaching that introducing air into an ion chamber at  $1 \times 10^{-5}$  torr to  $5 \times 10^{-5}$  torr increases the effective removal of contaminants.

21. It would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the chamber pressure to between  $1 \times 10^{-5}$  torr to  $5 \times 10^{-5}$  torr and introduce air into said chamber to decontaminate the chamber because such a pressure range not only increases the effectiveness of the decontamination procedure, but, as taught in Wagner et al., the use of air also creates a passivation layer on an implanted wafer in the chamber which prevents out diffusion of dopants (Col. 6 Lines 6-14 of Wagner et al.).

***Allowable Subject Matter***

22. Claims 5-9, 21-23, 25-27, and 30 are allowed.
23. The following is an examiner's statement of reasons for allowance:
24. Applicant has cancelled previously indicated as allowable claims 24 and 29 and incorporated their subject matter into claims 21 and 25 respectively. The reasons for allowance previously set forth with respect to claims 24 and 29 are respectively applicable to claims 21 and 25 as of this Office action.
25. Regarding claim 5, the applicant has rewritten claim 5 to be in independent form, incorporating all limitation of the parent claims. The reasons for allowance previously applied to claim 5 remains and the objection is withdrawn.
26. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

27. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
28. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within



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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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